Claims

What is claimed is:

1. A method of rewriting a query during a database query processing operation, comprising the steps of:

processing the query in accordance with at least a portion of a data set producing query results;

analyzing data attributes from the query results; and

appending the query with at least one new predicate from at least one data attribute.

2. The method of claim 1, wherein the at least a portion of the data set comprises sampled records from the data set.

3. The method of claim 2, further comprising the step of sampling data records from the data set.

4. The method of claim 3, wherein the step of sampling data records comprises the step of sampling every Nth record from the data set.

5. The method of claim 1, wherein, in the step of analyzing data attributes, the data attributes comprise target data attributes and auxiliary data attributes.

6. The method of claim 5, wherein, in the step of appending the query, the at least one data attribute comprises at least one auxiliary data attribute.

7. The method of claim 1, wherein the step of analyzing data attributes comprises the steps of:

extracting statistics for each attribute from the query results;

extracting statistics for each attribute from the at least a portion of the data set; and

evaluating a relative selectivity for each attribute.

8. The method of claim 7, wherein the step of evaluating a relative selectivity comprises the steps of:

comparing a range of statistics from the query results to a range of statistics from the at least a portion of the data set for each attribute; and

determining whether each attribute is a selective attribute by comparing a ratio of the ranges to a predetermined value.

9. The method of claim 1, wherein the step of appending at least one new predicate comprises the steps of:

evaluating relative selectivity for each data attribute;

selecting at least one auxiliary data attribute with a high selectivity;

forming at least one new predicate; and

appending the user query with the at least one new predicate.

10. The method of claim 1, further comprising the step of performing a query processing operation on a data set with a rewritten query.

11. Apparatus for rewriting a query during a database query processing operation, comprising:

a memory; and

at least one processor coupled to the memory and operative to: (i) process the query in accordance with at least a portion of a data set producing query results; (ii)

analyze data attributes from the query results; and (iii) append the query with at least one new predicate from at least one data attribute.

12. The apparatus of claim 11, wherein the at least a portion of the data set comprises sampled records from the data set.

13. The apparatus of claim 12, wherein the at least one processor is further operative to sample data records from the data set.

14. The apparatus of claim 13, wherein the operation of sampling data records comprises sampling every Nth record from the data set.

15. The apparatus of claim 11, wherein, in the operation of analyzing data attributes, the data attributes comprise target data attributes and auxiliary data attributes.

16. The apparatus of claim 15, wherein, in the operation of appending the query, the at least one data attribute comprises at least one auxiliary data attribute.

17. The apparatus of claim 11, wherein the operation of analyzing data attributes comprises:

extracting statistics for each attribute from the query results;

extracting statistics for each attribute from the at least a portion of the data set; and

evaluating a relative selectivity for each attribute.

18. The apparatus of claim 17, wherein the operation of evaluating a relative selectivity comprises:

comparing a range of statistics for each attribute from the query results to a range of statistics to a corresponding attribute from the at least a portion of the data set; and

determining whether each attribute is a selective attribute by comparing a ratio of the ranges to a predetermined value.

19. The apparatus of claim 11, wherein the operation of appending at least one new predicate comprises:

evaluating relative selectivity for each data attribute;

selecting at least one auxiliary data attribute with a high selectivity;

forming at least one new predicate; and

appending the user query with the at least one new predicate.

20. The apparatus of claim 11, wherein the at least one processor is further operative to perform a query processing operation on a data set with a rewritten query.

21. An article of manufacture for rewriting a query during a database query processing operation, comprising a machine readable medium containing one or more programs which when executed implement the steps of:

processing the query in accordance with at least a portion of a data set producing query results;

analyzing data attributes from the query results; and

appending the query with at least one new predicate from at least one data attribute.